

Defending Design Arguments Against Plantinga

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Abstract

This article criticises Alvin Plantinga's claim that 'basic' design beliefs, which arise without a conscious inference, have more positive epistemic status than non-basic ones and that we cannot evaluate the probabilities involved in inferential, inductive design arguments.

Keywords: design arguments, basic belief, probability, God

1 Plantinga's claim about design arguments

Professor Plantinga, in his book *Where the Conflict Really Lies: Science, Religion, and Naturalism* (2011), claims that design arguments for the existence of God are best construed, not as inferences from premises to conclusions, but as 'design discourses' which produce beliefs in design. Reading texts with design arguments, like William Paley's *Natural Theology* (1802) or Michael

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Behe's book *Darwin's Black Box* (1996), produces or recalls in many readers the impression and the belief that God has 'designed' the animals. This belief, like perceptual beliefs, can have 'a great deal of warrant or positive epistemic status for you, even if you don't know of any good argument from other beliefs for the belief in question – even, indeed, if there *aren't* any good arguments of that sort.' (249)

In this article I shall criticise Plantinga's claim that basic design beliefs have more positive epistemic status than non-basic ones. Further, I shall defend Paley's and Behe's argument against Plantinga's objections and suggest that probabilistic reasoning is useful and rational also here. I shall proceed as follows:

- Offer a definition of 'intervention'.
- Raise objections against Plantinga's divine collapse-causation view.
- Criticise Plantinga's claim that basic design beliefs have more positive epistemic status than non-basic ones.
- Defend Behe's argument against Draper's and Plantinga's objection.
- Criticise Plantinga's claim that we cannot evaluate the probabilities involved Behe's design argument.

2 Guided evolution, design, and interventions

In order to formulate or evaluate design arguments, we need a clear idea of a divine intervention. Plantinga, in this book, avoids expressing a view on whether and where God's creating the universe involved any divine interventions, presumably because Christians are not committed to one or the other view. He

affirms that the universe is ‘designed’ and that, if there was evolution, then it was ‘guided’, but he uses both these terms in so wide senses that they do not imply divine interventions. What a divine intervention is Plantinga defines only tentatively. He clearly rejects attempts to rule out the possibility of interventions, e.g. by the ‘Divine Action Project’, but he does not present a clear definition or characterization of divine interventions.

In my view, we can sharpen our ordinary idea of a divine intervention by linking it to the notion of a causal process. I assume that there are causal processes, for example a tidal wave is or is constituted by a causal process. Causal processes have a direction, they are heading in a certain direction. For example, 20 minutes after the earthquake in Chile on 27 February 2010 there was an tsunami wave heading towards Constitución. So there was then a causal process with a direction towards the tsunami hitting Constitución 10 minutes later. The direction of a process need not be spacial: the increasing pressure in a volcano for example is a process directed towards an eruption.

A process can be stopped (or, if you prefer, changed or deflected). For example: if billiard ball A is hit by billiard ball B, then the process of A’s rolling is stopped. In my view, every process can be stopped and there are thus no deterministic processes in the usual Hobbesian and Laplacean sense, but nevertheless they have a direction into which they are going unless something stops them.¹

A divine intervention is an event brought about by God directly which is incompatible with² an event towards which a

¹This refers to non-probabilistic processes. A probabilistic process is special in that it may go one way or another without there being a cause of it going the way it does.

²In order to take into account the case of God causing directly an event which would have occurred without the intervention too, we need to add here: ‘or exactly similar to’.

physical process, a process consisting solely of things located in the universe, was directed. As it is not the result of a causal process, it has no complete preceding cause. It stops a causal process. By God ‘bringing about the event directly’ I mean that the event has no preceding cause but its occurrence is due to the agent. We can say that it is the decision or choice of the agent, wherefore I call it a ‘choice event’. In my view, not only God but also humans and animals can bring about choice events. Furthermore, not only agents but also causal processes can intervene into a causal process. When a billiard ball hits another one, that is an intervention too, although not by an agent but by a non-living thing. A further difference is that the two billiard balls can be taken to constitute one process, which then contains two process one of which intervenes in the other, while when God intervenes there is no process directed towards the intervention. (For more on this, see Wachter 2003 and Wachter 2009.)

3 Is Plantinga an occasionalist?

Let us consider Plantinga’s view of God’s action in the world. Discussing what an intervention is, instead of giving a definition or description of a divine intervention, Plantinga puts forward tentatively a view that he calls ‘divine collapse-causation’ (DDC):

[F]or any collapse [of a wave function] and the resulting eigenstate, it is *God* who causes *that* state to result. [...] God is *always* acting specially, that is, always acting in ways that go beyond creation and conservation. (116)

Plantinga considers the obvious objection: ‘But doesn’t this result in divine determinism, perhaps even occasionalism, in that God really causes whatever happens at the macro-level?’ Plantinga’s

reply is in my view quite true, but not a reply to the objection. He writes:

Just as it could be that God causes collapse-outcomes and does so freely, so it could be that we human beings, dualistically conceived, do the same thing. Suppose human beings, as the vast bulk of the Christian tradition has supposed, resemble God in being immaterial souls or selves, immaterial substances—with this difference: in their case but not in his, selves intimately connected with a particular physical body. Suppose, further, God has endowed human selves (and perhaps other agents as well) with the power to act freely, freely cause events in the physical world. In the case of human beings, this power could be the power to cause events in their brains and hence in their bodies, thus enabling them to act freely in the world. And suppose, still further, the specific proximate events human beings can cause are quantum collapse-outcomes. The thought would be that God's action constitutes a theatre or setting for free actions on the part of human beings and other persons—principalities, powers, angels, Satan and his minions, whatever. God sets the stage for such free action by causing a world of regularity and predictability; but he causes only some of the collapse-outcomes, leaving it to free persons to cause the rest. (119f)

Is DCC occasionalist? Plantinga does not clearly answer this question, but I think it is not. Occasionalism is the view that all events are not the result of causal processes but the result of God's, or some other agent's, direct action. DCC assumes that God and other agents cause directly only the eigenstates that result from the collapse of the wave functions. The wave function before the collapse presumably represents a causal process which God sustains and which contains states that God does not cause directly.

Does Plantinga think that God's causing a collapse-outcome is an intervention? He does not answer this question, but there are two ways to spell out DCC here. First, a defender of DCC might say that God's causing a collapse-outcome is an intervention, presumably an intervention into a probabilistic process. We can call this the quantum intervention view. Second, a defender of DCC might negate this and say instead that each process leading to the collapse of the wave function simply ends there, without anything intervening. God would have to re-create matter after each collapse. We can call this the re-creation view.

To the quantum intervention view I would object this: Why does God intervene at *each* collapse of a wave function? If God causes directly a collapse-outcome, that is an intervention into the probabilistic process even if the process would have led, with some probability, to the same event. And why does God never intervene at other points? Further, does not the evidence suggest that there are at the quantum level probabilistic processes, with the various possible outcomes having certain probabilities? That suggests that God does *not* intervene at each collapse.

To the re-creation view, I would object that there are reasons for God to give matter the power to persist for longer. DCC, as opposed to occasionalism, implies already that there is secondary causation, i. e. that there are material causal processes. Some material states of affairs are caused by preceding material states of affairs while God sustains them. They are not brought about by God directly. So causation through created things is possible. Why then should God make matter so that it ceases to exist at each collapse of a wave function? A material world that persists so that it does not need frequent re-creation seems more beautiful and more ingenious. Furthermore, it allows humans and animals to foreknow the probable consequences of their actions without God's interventions being required.

Many authors think that God (as well as men and animals) can act freely only, or especially well, in probabilistic situations, for example in the collapse of a wave function. Usually they think that because they have an idea of processes that stems from determinism as Hobbes, Spinoza, and Kant believed in it. On this view, non-probabilistic processes are non-stoppable. But there is no reason to believe in non-stoppable processes. Also non-probabilistic processes can be stopped by material processes as well as by animals and humans. (As argued in Wachter 2012.) The idea that God has endowed human beings with the power to cause freely events in the physical world, as Plantinga sketches it in the passage quoted above, is better spelled out as follows: God created a material world in which created things can cause (thus there are ‘*causae secundae*’) and depend on being sustained by God. There are therefore material causal processes, which give rise to causation as well as to persisting things. They carry on as long as God sustains them and nothing stops them, but they can be stopped: by other material processes, by animals, or by the actions of created rational embodied or disembodied persons, or by God.

4 Plantinga’s view on design arguments

Now we can examine Plantinga’s position on design arguments. In honor of the philosopher William Paley (1743–1805), I mean by a *Paley argument* an argument for the existence of God which claims that God has intervened at least once in order to create some animal or a part of it when there had been some animal already. So a Paley arguments contradicts the theory of evolution, by which I here mean the view that all animals have evolved through natural processes from non-living matter, without any interventions by disembodied persons like God. This sense is wide in that it does not specify which natural processes (e.g.

mutation and selection) and narrow in that, unlike Darwinian evolution, it includes the evolution of life from non-living matter. By theistic evolution I mean the theory that processes consisting only of non-living matter can create living beings and that processes involving some living beings can create more complex animals, and that God in creation never intervened but only sustained things in being. Plantinga emphasises that theistic evolution is compatible with theism.

Let me summarise Plantinga's view on Paley arguments. He claims (in ch. 8) that Paley's and Behe's arguments, taken as arguments from certain premises to certain conclusions, are weak. Behe argues, and illustrates with much biological detail, that there are many parts of animals which are very unlikely to have evolved, because they have or give an advantage in survival only if many of their parts and properties are exactly as they are. They are machines with many necessary parts. If one part is missing or slightly different, the machine does not work and thus gives no advantage in survival. He calls such things 'irreducibly complex systems'. For example, the bacterial flagellum has a motor with a rotor. The motor functions, and thus gives a survival advantage, only if very many proteins and other parts are exactly as they are and are in the right place. But the theory of evolution, in order to make probable the existence of all the animals and their parts, has to assume that all animals evolved through many small changes each of which gave an advantage in survival.

Against Behe, Plantinga puts forward Draper's (2002) objection, who points out that it *could* be that the systems Behe describes are not irreducibly complex. They might have evolved indirectly, i. e. via systems which had some *other* function through which they gave a survival advantage. Plantinga concludes that Behe's argument 'is by no means airtight'. (231) He adds briefly the objection that 'it is hard *in excelsis* to say *how* low' the probability of the unguided evolution of, for example, protein

machines is.

Plantinga claims that while design arguments are not very successful, ‘design discourse’ produces design beliefs with ‘a great deal’ positive epistemic status (249). Seeing some animal or reading about some bacterium, often people get the impression that it is designed. There is then, according to Plantinga, no inference from premises to a conclusion involved. The belief is not based on an argument or on evidence or on other beliefs. It is a ‘basic’ belief.

‘Perhaps what is going on in the arguments like Behe’s [...] can be better thought of as like what is going on in [cases] where it is *perception* (or something like it) rather than argument that is involved.’ (237) I have not discovered whether Plantinga endorses the claim that some people’s design beliefs actually are justified through apparent *perceptions* of design, but he does endorse the more general claim that we ‘form design beliefs, at least on some occasions, in the basic way. If so,’ according to Plantinga, ‘the belief in question can have warrant or positive epistemic status, indeed, a great deal of warrant or positive epistemic status for you’. (249)

Plantinga believes that basic design beliefs have more positive epistemic status than non-basic ones because they are subject to fewer sorts of criticisms. Non-basic beliefs ‘can be criticised in terms of the cogency of the argument. We can ask whether the argument is valid, i. e., whether the conclusion really follows from the premises; we can also ask whether the premises are true; we can also ask whether the argument is circular, or begs the question, or is in some other way dialectically deficient. None of these sorts of criticism is relevant to beliefs formed in the basic way.’ (251) If a design belief arises spontaneously, then it has more positive epistemic status for you than if arises through thinking about it.

5 What is a basic belief?

I shall now criticise Plantinga's claim that spontaneous design beliefs, which Plantinga calls 'basic', have a higher epistemic status than non-basic ones. For this I need to consider what a basic belief is and how it can be criticised.

What is a basic belief? Consider a perceptual belief. When Miller looks at a field and sees a cow, he comes to believe that there is a cow. This belief is justified or supported or made more rational or made more probable to some degree by the perceptual, visual experience, or by Miller's belief in the perceptual experience. Plantinga prefers not to use these words, instead he says that the belief has 'a great deal of warrant or positive epistemic status' for Miller. (248) Suppose that Miller, besides his visual experience, has no evidence for there being a cow: he has seen no hoof marks or cow pat, and for all he knows there is a fence around the field. So his beliefs would rather lead him to expect that there are no cows on the field. That is the kind of situation to which Plantinga's concept of a basic belief applies (cf. Plantinga 2000, p. 83): The person has no evidence or argument at all for the belief; he does not believe that the cows on the field explain something that he believes.

Now consider the relationship of one belief supporting another one. Suppose that Jones sees cow pat and hoof marks in his garden and concludes that there was a cow. Let us call his belief that there was a cow the hypothesis, *h*, and Jones' belief that there is cow pat (or, if you prefer, the cow pat itself) the evidence, *e*. *h* provides, with some probability, an *explanation* for *e*, because the cow might well have *caused* the cow pat. We can then say that *e* is *evidence* for *h* and that Jones *inferred* *h* from the evidence, or that Jones believes that *e makes h probable*, or

that *e* is evidential or *inferential support* for *h*.³

We can say about Miller's visual experience as well as about his belief in the cow pat that they *support*, *justify*, or *make more rational* the belief in question. Only a belief is usually said to *make more probable* a hypothesis, although one could say this also about a perceptual experience.

Perceptual beliefs are not the only basic beliefs, i. e. beliefs without inferential support. Other basic beliefs are supported by experiences other than perceptions (or one could define 'perception' as wide as 'experience') or through intellectual (*a priori*) insight (which one could include in the concept of perception) or through memory, and you can believe something where you do not remember how you acquired this belief. The latter case would be an *unsupported* basic belief.

In my view, a belief that has perceptual or other non-inferential support can *additionally* be supported by evidence. (I have not found that Plantinga considers that possibility.) If Miller first sees hoof marks in the field and thinks 'It seems that cows have entered the field' and then sees a cow in the field, then his belief *h* is supported by evidence *as well as* by a perceptual experience.⁴ So a belief can have any mixture of inferential and non-inferential support. We could mean by a basic belief one which the person believes *not only* because it is supported by evidence (and thus is at least partially non-inferential). But Plantinga roughly means by a basic belief one for which the person does not have inferen-

³The term 'evidence' (in German 'Evidenz') used to be used, e. g. by John Locke, Franz von Brentano, and Edmund Husserl, for *a priori*, intuitive, self-evident knowledge, while today it is, to the contrary, used for beliefs (or their objects) that make a hypothesis probable. (For example in Swinburne 2001, pp. 135–139.) I use 'evidence' only in the latter sense of inferential support, so that support through a perceptual experience is not evidence or evidential support.

⁴This is developed in more detail in Swinburne 2001, 139f.

tial support, that is, the person does not derive it from his other beliefs (for example through an inference to the best explanation).

6 How can basic beliefs be criticised?

All beliefs can be criticised by giving counter-evidence. Further, a belief can be criticised by objecting that it has no support. Plantinga calls that ‘undercutting defeaters’. (165, 251–256) Different kinds of support have to be criticised differently. Miller’s perceptual belief that there is a cow because he has seen it can be criticised by suggesting that his eyes do not work properly: by pointing out that there is an elk which one can easily mistake for a cow, or that he is under drugs, or that there is an evil demon who manipulates his mind. Jones’ inferential belief that there was a cow in his garden because he has seen the hoof marks can be criticised by suggesting a better explanation for the data: by pointing out that an elk’s hoof marks look similar, or that Smith had told that he intended to deceive Jones by producing marks in the garden.

Plantinga argues that design beliefs produced by design discourse are not subject to criticisms of the inference because they are basic. I reply that it is wrong to conclude from the fact that the person does not reason step by step from premises to the conclusion that the belief is not subject to criticism of the inference. It is the other way round: Examining whether a belief is subject to criticism of an inference is one way to determine whether it is at least partly inferential.

For example, seeing the hoof marks in his garden Jones might immediately, without any explicit reasoning from premises to a conclusion, have a strong impression that the marks were produced by a cow. Nevertheless his belief that there was a cow or his belief that the marks were produced by a cow clearly is not

basic. For two reasons: First, there is no memory and no perceptual (or other) experience whose content involves a cow in his mind. Both beliefs would be based on a perceptual experience only if he believed to *see*, or in some other way to be in contact with, a cow. They could still be basic, but if they were not based on an experience of a cow and had no inferential support, then they would have no support at all! Secondly, both beliefs clearly *are* subject to criticisms of inference, and *not* subject to criticism of the functioning of his sense organs. It is a valid criticism to object that there is a more probable explanation for the marks on the ground. You can say that the children yesterday produced the marks for fun by hand, or that they brought an elk into the garden yesterday and that elk hoof marks look similar to cow hoof marks. This is to say that there is a *better, i. e. more probable explanation* of the data. That is the kind of objection which according to Plantinga does not apply to design beliefs produced by design discourse. So some beliefs are inferential and thus not basic although the person did not reason explicitly step-by-step from premises to a conclusion.

Now consider design beliefs that are produced by design discourse. In order to defend his claim that they have a high epistemic status, Plantinga should say which kind of basic beliefs they are. Are they supported or produced by perception, or by some other kind of experience, or by memory, or are they supported by nothing because we have forgotten why we believe them? Plantinga does not say. But surely this matters. First because on this it depends how high the epistemic status of the belief is, and secondly because on this it depends what kind of undercutting defeater the belief is subject to. It makes epistemically a big difference whether you believe something because you (believe that you) *saw* it or you have no idea why you have that belief.

The impression of design clearly is not a case of apparent memory. We have no memories of the origin of the species. Is

it a case of perception? In a perception something seems to the person to be present to him, it seems to him that he is in contact with it. Our design beliefs are never based on such an experience, because nobody believes that he perceives God, or someone else, designing a species or an animal. In the impression of design it does not seem to the person that he is in contact with the designer. That is already clear through the fact that we believe that God did the designing a long time ago. In this design beliefs differ also from beliefs in the existence of other minds, with which Plantinga compares design beliefs. (245) Many believe that they perceive animals which are designed, or animals which were created by God with or without intervention, but nobody believes that he perceives God designing the animals. We also have no other sort of experience of design, such as intellectual knowledge.

So if design beliefs produced by design discourse were basic, then they would have no support at all. That does not seem to be true either, because then we would just find ourselves with them and not remember why and since when we have them. But we know that we have them through design discourse, through observing animals, and, in my view, through considering how likely it is that all animals and plants evolved.

The trouble with basic beliefs that have no support is that their epistemic status is low and is lowered easily by objections. If you find yourself believing that it was Jones who built your father's house but cannot remember why you believe this, then you should weaken or give up this belief as soon as your mother tells you that it was built by Smith, or you find an invoice by Smith, or you find out that Jones was not a builder but a philosopher. Or if you find yourself believing in the theory of evolution but do not know why you believe this, then you should weaken or give up this belief if upon investigating the matter you find evidence against it or only little evidence for it.

Plantinga wants to hold that design beliefs that were formed

without inference, spontaneously, are as resilient against probabilistic objections as my belief that I am seeing my old friend White over there is resilient against the objection that I have not seen White for a long time and that White is living in China. Perceptual experiences make it rational to believe things that otherwise, on the basis of what we know or believe, would be quite improbable. Of course, also the probability of perceptual beliefs is affected to some degree by the person's other beliefs. I should trust my perceptual experience of a normal cow more than my (equally clear) perceptual experience of a cow with a trunk and antlers at another occasion. But perceptual experiences, depending on how unambiguous they are, can make for a person a proposition very probable that on his other beliefs would be improbable. However, we do not have perceptual experiences of God designing animals or plants. While Plantinga claims that design beliefs which arise spontaneously have a higher epistemic status than others, they have in fact a lower one. They would have a higher one only if they were based on a clear perceptual experience.

I conclude that, against Plantinga, design beliefs that arise spontaneously through design discourse, without the person considering the probabilities of possible explanations, have a lower epistemic status than design beliefs that are based on such considerations.

7 Draper's objections to Behe's argument

Now I want to defend Paley arguments against Draper's objection, which Plantinga endorses. It is of course true that something could evolve indirectly, i. e. via things that have different functions. But Draper and Plantinga have done nothing to show that this raises the probability of the theory of evolution significantly. Perhaps Behe could have done more in order to show that

it is improbable that some or all of the complex systems which he presents have evolved indirectly. But certainly his descriptions of the complex systems do this to some degree. They give the reader new knowledge about biological systems and about how many things in nature have and require many parts that are fit exactly for the function that they have. For example, if the bacterial flagellum were to have evolved, then very many of its parts would have had some other function before they came together to form the bacterial flagellum. But many of its parts seem to be made exactly for the flagellum and to have no other function. Therefore, even if Behe did not discuss indirect evolution explicitly, the probability that some or even all complex systems which exist evolved seems low even if we consider the possibility of indirect evolution.

Draper, however, only points to the mere possibility of indirect evolution, without considering any real examples and biological research. That diminishes the strength of Behe's arguments only insignificantly.

Plantinga writes that Draper has shown 'that Behe's conclusion doesn't deductively follow from his premises' and that Behe's argument 'is by no means airtight'. (231) I wonder why Plantinga thinks that Behe wanted to propose an airtight argument with a conclusion that follows deductively from premisses. Of course they are not airtight and not deductive. The sets of sentences that modern logic books call 'deductive arguments' are deductive inferences, but most cases of what we call 'arguments' in science or every day life, arguments that really affect beliefs, contain steps that are in some sense inductive. Ordinary arguments suggest that something is evidence for the hypothesis. From this point of view, Plantinga's statement 'that Behe's conclusion doesn't deductively follow from his premises' and that Behe's argument 'is by no means airtight' is trivial and no objection.

Not only does Plantinga not assume, as I would, that the argu-

ments that are worth discussing are all probabilistic, but he even often ignores the possibility of probabilistic arguments. For example when he concludes: '[T]he real significance of Behe's work, as I see it, is not that he has produced incontrovertible arguments for the conclusion that these systems have been designed; it is rather that he has produced several design discourses.' (258) So Plantinga considers whether Behe has 'produced incontrovertible arguments' and whether he has produced 'design discourses', but he ignores what clearly is Behe's intention: to provide evidence against, and thus diminish the probability of, the theory of evolution.

Similarly, when considering in general how arguments can be criticised, Plantinga mentions only the following: '[A belief formed as the conclusion of an argument] can be criticized in terms of the cogency of the argument. We can ask whether the argument is valid, i. e., whether the conclusion really follows from the premises; we can also ask whether the premises are true; we can also ask whether the argument is circular, or begs the question, or is in some other way dialectically deficient.' (251) Again, he does not consider the possibility of objecting to an argument that the premises fail to make the conclusion more probable or that the suggested evidence fails to support the hypothesis. He seems to ignore that many arguments are not meant to be deductive, that beliefs have probabilities and degrees of strength, and that weighing evidence has a central role in rational belief formation. Surely, even if an externalist theory of knowledge, as Plantinga defends it, is true, probabilistic reasoning exists and plays an important role in our search for truth. Although Plantinga has so strongly attacked classical foundationalism, apparently he has not rejected the non-probabilistic, digital epistemology that classical foundationalists generally had.

8 Against Plantinga, we can and should consider how probable the theory of evolution is

Plantinga rejects probabilistic Paley arguments saying that ‘it is hard *in excelsis* to say *how* low’ the probability of the existence of protein machines on the assumption of unguided evolution is. (235) Similarly, he says about the fine-tuning argument for the existence of God that it ‘offers some slight support for theism’ (224). Plantinga seems to be sceptical about probabilistic arguments in general. I want to criticise this scepticism.

If probabilistic reasoning were unreliable, then detectives and scientists could not evaluate the probability of their hypotheses as they do, or their beliefs about the probability of the hypotheses would be wrong or unjustified. They often believe that a certain person did a certain action where this belief is supported through evidence, such as fingerprints or DNA analysis. They arrive at these beliefs not in the basic way which Plantinga favours but by considering the probability of various explanations of the evidence. We generally assume that such probabilistic reasoning is the right method and that it leads to justified and true beliefs. We can often work out sufficiently well how strongly some item of evidence supports a hypothesis.

Why does Plantinga say that ‘it is hard *in excelsis* to say *how* low’ the probability of the existence of protein machines on the assumption of unguided evolution is? Behe’s book and many other texts about the protein machines do much to show that the probability of the existence of protein machines on the theory of evolution is much lower than on theism. They do this by showing how complex protein machines are.

We evaluate such probabilities by considering what causes what. We know relatively much about what causes what. Even without detailed scientific knowledge we know that unless something holds them apples fall down from the tree, that water does not turn

into wine, and that dead men do not become alive again if no god re-animates them. Behe's and others' detailed knowledge about protein machines confirms what we are inclined to believe anyway: that there are no processes that would create such complicated machines.

Imagine you walk along the beach and see two hearts drawn in the sand at the beach. Why are you are justified in believing that someone drew them? You know, even without detailed research, that it is very unlikely that a natural process, such as the water flowing over the sand, brings about such hearts. Further you know that human beings occasionally draw that sort of thing into the sand. Thus you know that the probability of the hearts having been produced by natural processes is much lower than them having been produced intentionally by human beings. You know this even though you know nothing about the character and the motive of the person. There is of course the possibility that there is a kind of natural process, hitherto unknown, which might well produce hearts in the sand, but it would be a mistake to say that we cannot say how low the probability of a natural process having produced the hearts is. We know enough about the natural processes involving sand at the beach in order to have relatively much reason to believe that that probability is very low. One can disagree about the exact way how our inductive reasoning can be reconstructed, for example about whether subjective or objective Bayesianism or some other approach is more adequate. But it would certainly be wrong to deny that we can draw justified conclusions about whether a person or a natural process caused something.

It seems that similarly we know that it is much more probable that protein machines were produced by divine intervention than that they were produced by natural processes. All the details about protein machines that Behe and others have discovered give further support to this because they make it very

unlikely that they could be brought about by gradual changes. Of course, one can give objections against this claim: For example, one could try to point to certain processes which might well produce such machines, or one could try to use the claim that we have never seen God intervening in order to criticise the inference. But Plantinga just says that ‘we don’t have a very good grasp of [...] those probabilities’. That is wrong, because we have done much research about evolutionary processes and about protein machines, and the hypothesis of theism contains more detail about God’s abilities, character, and motives than our beliefs about other people. Behe just infers, probabilistically of course, to ‘an intelligent designer’. Even that inference is well justified. If you take theism as the hypothesis, with a God who is omnipotent, omniscient and perfectly good, the probability of a divine intervention is yet higher than that of just someone’s intervention.

I conclude that Plantinga offers no good reason for saying that ‘it is hard *in excelsis* to say *how low*’ the probability of the existence of protein machines on the assumption of unguided evolution is and for his skepticism about design arguments.

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